

proportional to the difference between the dry and wet-bulb thermometers, and as shown by the chart accompanying Professor Harrington's memoir on "Sensible Temperatures," June 1, 1894, it amounts on the average to  $20^{\circ}$  in the month of July in Arizona, Nevada, and Utah and  $10^{\circ}$  in Kentucky, Indiana, and Ohio.

The resulting sensible temperatures, as shown on his second chart, are simply the so-called average temperatures of the wet-bulb thermometer as obtained by the whirling apparatus used in the shaded shelter, and correspond to the temper-

atures felt by persons standing in the shade of trees or houses, exposed to a natural breeze of at least 6 miles per hour. The temperature of the wet-bulb thermometer and its depression below the dry bulb are the fundamental data for all investigations into the relation between human physiology and the atmosphere. In order to present a monthly summary of the atmospheric conditions from a hygienic and physiological point of view, Table Ia has been prepared, showing the maximum, minimum, and mean readings of the wet-bulb thermometer at 8 a. m. and 8 p. m., seventy-fifth meridian time.

## PRECIPITATION.

[In inches and hundredths.]

The distribution of precipitation for the month of December, 1894, as determined by reports from about 2,500 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III; the first of these also gives the average departures from the normal for each district, whereas the average departure for each State is given in Table XII for each State Weather Service. Unless otherwise stated, the snow or hail is understood to be melted and added to the rainfall.

### DIURNAL VARIATION.

Table IVb gives the total precipitation for each hour of seventy-fifth meridian time, as deduced from self-registering gauges kept at about 43 regular stations of the Weather Bureau; of these 37 are float gauges and 6 are weighing gauges.

### NORMAL PRECIPITATION FOR DECEMBER.

The normal precipitation for December is shown on Chart IX of the Atlas of Bulletin C, entitled "Rainfall and Snow of the United States, Compiled to the End of 1891, with Annual, Seasonal, Monthly, and other Charts," by Mark W. Harrington, Chief of the Weather Bureau, Washington, 1894. From this Chart it appears that the region of greatest rainfall in December on the Pacific coast is the northwest corner of Washington, with a normal of 14 inches; on the Atlantic coast it is at Cape Hatteras, with a normal of 5 inches, which also extends over portions of northern Georgia, Alabama, Mississippi, and Louisiana. Less than 1 inch is to be expected over any portion of the eastern and northern Rocky Mountain slope.

### PRECIPITATION FOR CURRENT MONTH.

The precipitation for the current December was heaviest in the northwest portion of California and southwest corner of Oregon. The snowfall was also remarkably heavy on the upper portions of the Sierra and Coast ranges, as shown in detail in a following section.

### CURRENT DEPARTURES FROM NORMAL PRECIPITATION.

The precipitation for December was deficient over the whole of the United States, except a few small areas, i. e., California and Nevada, Lake Superior, eastern Kentucky and Tennessee, and thence to central New England.

The principal departures from the normal at Weather Bureau stations were as follows:

Excesses: Red Bluff, 5.7; Sacramento, 4.6; Eureka, 4.2; San Francisco, 3.8; Fresno, 2.6.

Deficits: Fort Canby, 5.5; Olympia, 5.0; Portland, Oreg., 4.8; Astoria, 4.3; Galveston, 3.9; Charleston and Savannah, 3.2.

Considered by districts, the precipitation for December, 1894, when compared with the normal for the month, furnishes the departures given in Table I, as expressed in inches.

By dividing those departures by the normal precipitation for December we obtain the following corresponding percentages (precipitation is in excess when the percentage of the normal exceeds 100):

Above the normal: New England, 123; middle Atlantic, 108; Ohio Valley and Tennessee, 108; lower Lake, 134; southern plateau, 140; middle plateau, 122; middle Pacific, 181; southern Pacific, 133.

Normal: Middle slope, 0.00.

Below the normal: South Atlantic, 56; Key West, 14; east Gulf, 77; west Gulf, 57; upper Lake, 77; North Dakota (extreme northwest), 47; upper Mississippi, 85; Missouri Valley, 64; northern slope, 60; southern slope (Abilene), 35; northern plateau, 47; north Pacific, 69.

For certain voluntary stations of rather long periods of observation the normal and extreme monthly precipitations and the departures are shown in detail in Table X b, which is now placed among the meteorological tables instead of being inserted in the text as heretofore.

### YEARS OF GREATEST PRECIPITATION FOR DECEMBER.

The precipitation for the current month was the greatest on record for the month of December at regular Weather Bureau stations, as shown in the following table:

Station..	Current precipitation.		Previous maximum.	
	Amount.	Departure.	Amount.	Year.
Fresno, Cal.....	4.00	+2.6	3.99	1891
Nantucket, Mass.....	5.83	+2.4	4.93	1886

### YEARS OF LEAST PRECIPITATION FOR DECEMBER.

The precipitation for the current month was the least on record for the month of December at regular Weather Bureau stations, as shown in the following table:

Station.	Current precipitation.		Previous minimum.	
	Amount.	Departure.	Amount.	Year.
Key West, Fla.....	1.26	-- 1.6	0.27	1874
San Antonio, Tex.....	0.04	-- 1.7	0.27	1889
Dubuque, Iowa.....	0.35	-- 1.6	0.52	1876
North Platte, Nebr.....	1.	-- 0.7	0.03	1890
Valentine, N. Hr.....	0.05	-- 0.6	0.10	*
Pierre, S. Dak.....	0.08	-- 0.4	0.08	1886
Bismarck, N. Dak.....	0.06	-- 0.7	0.06	1881
Walla Walla, Wash.....	0.80	-- 1.7	0.94	1890
Fort Canby, Wash.....	1.63	-- 3.7	3.07	1885

\* Frequently.

### ACCUMULATED PRECIPITATION.

The total accumulated monthly departures from normal precipitation from the beginning of the year to the end of the current month are given in the second column of the fol-

lowing table; the third column gives the ratio of the current accumulated precipitation to its normal value:

District.	Accumulated departure.	Accumulated precipitation.	District.	Accumulated departure.	Accumulated precipitation.
Key West.....	Inch. 2.00	Per ct. 105	New England.....	Inch. 8.10	Per ct. 82
Middle slope.....	0.40	102	Middle Atlantic.....	5.30	89
Middle plateau.....	0.20	102	South Atlantic.....	4.20	93
Northern plateau.....	0.90	105	East Gulf.....	9.00	85
North Pacific.....	11.70	119	West Gulf.....	6.80	86
Middle Pacific.....	1.80	106	Ohio Valley and Tennessee.....	11.10	76
			Lower Lake.....	4.50	87
			Upper Lake.....	2.00	94
			North Dakota (Ex. N.W.).....	0.50	97
			Upper Mississippi.....	12.00	67
			Missouri Valley.....	8.84	72
			Northern slope.....	1.40	90
			Southern slope (Abilene).....	3.70	87
			Southern plateau.....	3.90	66
			Southern Pacific.....	4.60	66

#### EXCESSIVE PRECIPITATION.

The following table for December, 1894, shows, by States, the individual stations reporting total precipitation to equal or exceed 10.00 inches during this month, 2.50 in 24 hours, and 1.00 in 1 hour:

Excessive precipitation, by stations, for December, 1894.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.	Inches.	Inches.		Inches.	h. m.	
Jasper.....	2.61	12				
Mobile.....			1.17	1 00	11	
Oxanna.....	2.50	11-2				
Bee Branch.....	2.70	9				
Arkansas.						
Anderson.....	13.33					
Aptos.....	13.32					
Auburn.....	13.56					
Bear Valley.....	22.37	2.85	18			
Do.....		2.60	22			
Berkeley.....	12.63					
Boca.....	11.80					
Boulder Creek.....	30.53					
Calistoga.....	15.39					
Cape Mendocino Lighthouse.....	17.80					
Chicago Park.....	17.20	2.60	5-6			
Chico.....	11.08					
Cisco.....	21.60					
Cloverdale.....	18.60	3.04	21			
Colfax.....	24.17					
Corning.....	10.85					
Crescent City.....	13.46					
Crescent City Lighthouse.....	14.30					
Deep Creek.....	18.41	3.32	5			
Do.....		6.09	19			
Do.....		3.17	29			
Delta.....	33.17					
Drytown.....	12.47					
Dunnigan.....	11.22					
Dunsmuir.....	15.80					
Durham.....	10.12					
Edmonton.....	24.00					
Eldorado.....	14.37					
Elmira.....	12.83					
El Verano.....	14.09					
Eureka.....	12.31	3.47	20-21			
Felton.....	24.14					
Folsom City a.....	11.68					
Folsom City b.....	11.74					
Fordyce Dam.....	38.41	7.08	6-7			
Do.....		8.50	17-19			
Do.....		6.90	21-22			
Georgetown.....	20.93	3.30	17-18			
Do.....		2.52	22			
Glendora.....		3.03	19			
Glen Ellen.....	19.91					
Gormans Station.....		2.78	24			
Grass Valley a.....	16.55					
Green Valley.....	21.64	4.82	5			
Do.....		8.91	19			
Do.....		4.44	29			
Greenville.....	13.39					
Haywards.....	16.40					
Hillsburg.....	16.32	3.00	21			
Hendersons Ranch.....		3.90	20			
Humboldt Lighthouse.....	13.86					
Hydeville.....	11.20					
Iowa Hill.....	17.57	2.54	18			
Jackson.....	15.50	2.79	17			

#### Excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch or more, in one hour.	
		Amt.	Day.	Amt.	Day.
California—Cont'd.					
Kennedy Gold Mine.....	16.44				
Knights Landing.....	12.52				
Kono Tayee.....	10.70				
La Porte.....	15.47	2.50		17	
Laurel.....	24.91				
Lick Observatory.....	11.90				
Little Bear Valley.....	20.12	6.74		5-6	
Do.....		7.73		19	
Little Bear Valley (near).....	24.59	8.95		5-6	
Do.....		6.64		19	
Los Gatos a.....	15.85				
Los Gatos b.....	17.77	2.70		17	
Do.....		3.70		21	
Lower Holcomb Valley.....	15.69	8.02		19-20	
Mariposa.....	13.35				
Martinez.....	12.02				
Middletown.....	20.52	3.01		8-9	
Mills College.....	12.90				
Milton (near).....	10.53				
Mokelumne Hill.....	14.31	3.23		17	
Morse House.....	26.77	10.52		5-7	
Do.....		8.02		19-20	
Mount Glenwood.....	16.04				
Nevada City.....	20.61				
New Almaden.....	10.83				
Newcastle a.....	12.58				
Niles.....	10.85				
Oakland a.....	11.78				
Oakland b.....	12.64				
Orangevale.....	10.48				
Oroville a.....	11.48				
Paicromo.....	10.20				
Petaluma.....	10.15				
Placerville a.....	19.03				
Placerville b.....	18.49				
Point Arena Lighthouse.....	14.32				
Point Bonita Lighthouse.....	12.43				
Red Bluff (W. B.).....	11.01				
Red Bluff (S. P. R. R.).....	10.57				
Redding a.....	15.35				
Redding b.....	12.22				
Reppres.....	12.56				
Rocklin.....	11.10				
Rosewood.....	12.63	3.46		21	
San Leandro.....	11.64				
San Luis Obispo (W. B.).....			2.86	28-29	
San Mateo.....	12.12				
San Rafael.....	17.05	3.19		9	
Santa Cruz a.....	12.89				
Santa Cruz b.....	13.71				
Santa Cruz Lighthouse.....	11.89				
Santa Margarita.....	10.82				
Santa Rosa.....	13.14				
Shasta Springs.....	21.47	3.75		20	
Shingle Springs.....	14.50				
Sisson.....	11.13				
Squirrel Inn.....	16.38	6.70		5-6	
Summerdale.....	17.29				
Butter Creek.....	12.25				
Towles.....	13.88				
Truckee.....	13.95				
Tunnel No. 2.....	14.96	4.00		5-6	
Do.....		6.62		19-20	
Ukiah.....	15.47	3.03		21	
Upper Mattole.....	27.77	5.37		8-9	
Do.....		4.39		17	
Do.....		4.85		20-21	
Vacaville a.....	12.80				
Vacaville b.....	13.27				
Valley Springs.....	10.51				
Walnut Creek.....	10.04				
West Point.....	16.28	2.55		6	
Wheatland.....	10.75				
Winters.....	14.70				
Wire Bridge.....	13.31				
Woodland.....	10.69				
Yuba City.....	11.15				
Colorado.					
Ruby.....	11.81				
Florida.					
Plant City.....				1.17	1 00
Georgia.					
Adairsville.....		2.79		10-11	
Alapaha.....			2.55		
Canton.....			2.67		
Clayton.....			2.67	10	
Columbus.....			3.14	10-11	
Dahlonega.....			2.57	10-11	
Diamond.....			3.10	12	1 07
Marietta.....			2.85	25-26	
Toccoa.....		11-11	5.50	11-12	
Indiana.					
Marengo.....			2.50	'1	
Kentucky.					
Matlock.....			2.80	25-26	
Louisiana.					
Hammond.....			2.70	9	
Sugartown.....			2.84	9	
Maine.					
Belfast.....			2.68	27	

*Excessive precipitation—Continued.*

State and station.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Massachusetts.	Inches.	Inches.		Inches.	h. m.	
Beverly Farms.		2.84	26-27			
Boston (V.O.)		2.57	26-27			
Brockton a.		2.59	26-27			
Brockton b.		2.78	26-27			
Fall River.		2.75	26-27			
Framingham		2.53	26-27			
Hingham		2.99	26-27			
Long Plain		3.03	26-27			
Mansfield		2.58	26-27			
Middleboro		2.78	26-27			
Milton		2.66	26-27			
Nantucket		2.62	26-27			
Natick		2.55	26-27			
New Bedford a		3.08	26-27			
New Bedford b		3.07	26-27			
Plymouth		3.53	26-27			
Roxbury		2.67	26-27			
Somerset		2.99	26-27			
Taunton b		3.15	26-27			
Taunton c		3.01	26-27			
Taunton d		3.26	26-27			
Vineyard Haven		2.89	27			
Missouri.						
Arthur		2.73	I		/	
Gordonville		2.56	I			
Hastin		3.25	I-2			
Ironton		2.75	I-2			
Linn Creek		3.50	I-2			
Mine La Motte		3.01	*			
Oak Ridge		3.00	I			
Wheatland		2.95	I			
New Jersey.						
Ashbury Park		3.71	26-27			
Freehold		2.73	26-27			
Oceanic		3.16	26-27			
Salem		2.50	26-27			
Toms River		4.00	26-27			
North Carolina.						
Blowing Rock		4.65	10-11			
Flat Rock		3.23	11-12			
Highlands		2.70	10			
Horse Cove		5.67	10-11			
Lynn		4.05	11-12			
Marion		3.00	11			
Skyuka		3.07	12			
Oregon.						
Bandon	16.13					
Glenora	14.44	3.87	9			
Langlois	17.15	2.55	20			
Rhode Island.						
Block Island		2.52	27			
Bristol		2.72	26-27			
Providence a		2.50	26-27			
Central		3.00	II-12			
Tennessee.						
Clinton		2.50	II-12			
Index		2.74	II			
Neah Bay		11.98				
Tatoosh Island		11.75				

The following tables give a summary of the preceding table, and show the number of stations in each State reporting excessive precipitation during this month:

*Monthly precipitation to equal or exceed 10.00 inches.*

State.	Number of stations.	State.	Number of stations.
California	114	Washington	2
Oregon	3	Georgia	1

*Daily precipitation to equal or exceed 2.50 in 24 hours.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.	
California.....	35	5, 5-6, 5-7, 6, 6-7, 8, 8-9, 9, 17, 17- 18, 17-19, 18, 19, 19-20, 20, 20-21, 21, 21-22, 24, 28- 29, 29.		North Carolina ..	7	10, 10-11, 11, 11-12, 12. *
Massachusetts....	22	26-27, 27,	New Jersey.....	5	26-27.	
Georgia.....	8	10, 10-11, 11-12, 12, 25-26.	Rhode Island....	3	26-27, 27.	
Missouri .....	8	Nov. 30-Dec. 1-2.	Louisiana .....	2	9.	
			Oregon .....	2	9, 20.	
			Indiana .....	1	1.	
			Kentucky .....	1	25-26.	
			South Carolina ..	1	11-12.	
			Washington .....	1	11.	

*Hourly precipitation to equal or exceed 1.00 inch.*

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Georgia.....	2	II, 12.			
Alabama .....	1	II.	Florida .....	1	II.

*FREQUENCY OF EXCESSIVE PRECIPITATION.*

The following tables show the frequency of excessive precipitation or the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several States and Territories for December during the last twenty-five years:

*Frequency of excessive monthly precipitation.*

State.	No. years noted.	State.	No. years noted.
Washington .....	19	Colorado .....	2
California .....	16	Alabama .....	1
Oregon .....	13	Arizona .....	1
Texas .....	8	Indiana .....	1
North Carolina .....	6	Kentucky .....	1
Louisiana .....	6	Massachusetts .....	1
Florida .....	4	Michigan .....	1
Mississippi .....	3	Missouri .....	1
Arkansas .....	3	Nevada .....	1
Georgia .....	3	New Hampshire .....	1
New York .....	2	New Jersey .....	1
Tennessee .....	2	Virginia .....	1

*Frequency of excessive daily precipitation.*

State.	No. years noted.	State.	No. years noted.
California .....	17	Maryland .....	5
Louisiana .....	14	New York .....	5
North Carolina .....	13	Maine .....	4
Texas .....	13	New Jersey .....	4
Georgia .....	12	Missouri .....	3
Alabama .....	12	Kansas .....	3
Oregon .....	12	Michigan .....	2
Florida .....	11	Iowa .....	2
Mississippi .....	11	District of Columbia .....	2
Washington .....	9	Colorado .....	1
Indiana .....	9	Connecticut .....	1
South Carolina .....	7	New Hampshire .....	1
Kentucky .....	6	Utah .....	1
Illinois .....	6	Vermont .....	1
Ohio .....	6	Delaware .....	1
Pennsylvania .....	6	Indian Territory .....	1
Arkansas .....	6	Minnesota .....	1
Massachusetts .....	6	Wisconsin .....	1
		Rhode Island .....	1

*Frequency of excessive hourly precipitation.*

State.	No. years noted.	State.	No. years noted.
Texas .....	8	Georgia .....	2
California .....	6	Florida .....	2
Louisiana .....	5	Kansas .....	1
Mississippi .....	4	Massachusetts .....	1
Tennessee .....	3	Maine .....	1
Arkansas .....	3	Missouri .....	1
Alabama .....	3	Oregon .....	1
Illinois .....	2	Virginia .....	1
Indiana .....	2	Washington .....	1
Pennsylvania .....	2	Wisconsin .....	1
Michigan .....	2		

*EXCEPTIONAL PRECIPITATION.*

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for December during the last 25 years.

*Exceptional monthly precipitation.*

Station and state.	Amt.	Year.	Station and state.	Amt.	Year.
San Andreas, Cal.	51.05	1871	Boulder Creek, Cal.	30.53	1894
Pilarcitos, Cal.	41.87	1871	Upper Mattole, Cal.	29.30	1889
Fordyce Dam, Cal.	38.41	1894	Mount St. Helena, Cal.	28.91	1880
Felton, Cal.	34.95	1890	Summit, Cal.	28.88	1871
Mount Hamilton, Cal.	33.84	1884	Cisco, Cal.	28.30	1871
Delta, Cal.	33.17	1894	Upper Mattole, Cal.	27.77	1894
Reeds Camp, Cal.	32.07	1890	Sims, Cal.	26.92	1892
Laurel, Cal.	31.79	1890	Morses House, Cal.	26.77	1894
Emigrant Gap, Cal.	31.20	1894	Crescent City, Cal.	26.26	1885
Neah Bay, Wash.	30.70	1886	Tatoosh Island, Wash.	25.84	1886

## Exceptional monthly precipitation—Continued.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			Inches.	
Delta, Cal.	25.82	1889	Puyallup, Wash.	21.61	1886
Cisco, Cal.	25.57	1889	Cisco, Cal.	21.60	1894
Do	25.05	1884	Shasta Springs, Cal.	21.47	1894
Edmonton, Cal.	24.98	1892	Fort Stevens, Oreg.	21.27	1880
Laurel, Cal.	24.91	1894	American Hill, Cal.	21.22	1889
Little Bear Valley, Cal. (near)	24.59	1894	Boulder Creek, Cal.	21.11	1892
Upper Mattole, Cal.	24.48	1892	Grass Valley, Cal.	21.08	1889
Mumford Hill, Cal.	24.34	1880	Town Hill, Cal.	21.04	1889
Colfax, Cal.	24.17	1894	San Rafael, Cal.	20.96	1884
Felton, Cal.	24.14	1894	Georgetown, Cal.	20.93	1894
Edmonton, Cal.	24.00	1894	Emigrant Gap, Cal.	20.85	1889
Neah Bay, Wash.	23.91	1891	Los Gatos, Cal. a	20.73	1889
Colfax, Cal.	23.60	1884	Nevada City, Cal.	20.61	1894
Neah Bay, Wash.	23.22	1880	Crescent City, Cal.	20.58	1889
Georgetown, Cal.	23.94	1889	Dunsmuir, Cal.	20.58	1889
Grass Valley, Cal.	22.69	1888	Middletown, Cal.	20.58	1894
Laurel, Cal.	22.66	1892	Healdsburg, Cal.	20.42	1871
Neah Bay, Wash.	22.57	1887	Point Pleasant, La.	20.39	1884
Bear Valley, Cal.	22.37	1894	Santa Cruz, Cal.	20.38	1889
Do	22.09	1890	Portland, Oregon	20.14	1882
Vacaville, Cal.	21.85	1880	Little Bear Valley, Cal.	20.12	1894
Colfax, Cal.	21.85	1880	Tatoosh Island, Wash.	20.08	1891
Green Valley, Cal.	21.64	1894	Cathlamet, Wash.	20.00	1875

## Exceptional daily precipitation.

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			Inches.	
Upper Mattole, Cal.	16.93	22-24, 1892	Fouts Springs, Cal.	6.44	22-24, 1892
Point Pleasant, La.	13.50	19, 1894	McClellan, Fla.	6.33	24, 1888
Monroe, La.	12.15	29-30, 1884	Bandon, Oreg.	6.32	21-22, 1892
Edmonton, Cal.	11.71	23-25, 1892	Fort Meade, Fla.	6.20	17, 1888
San Rafael, Cal.	11.45	17-21, 1884	Farmerville, La.	6.15	5, 1890
Morses House, Cal.	10.52	5-7, 1894	Dry Creek, Cal.	6.09	19, 1894
Mount Ida, Ark.	10.35	26-30, 1884	Gardiner, Oreg.	6.07	20-21, 1892
Cloverdale, Cal.	10.10	23-24, 1892	Minden, La.	6.02	23, 1891
Morses House, Cal.	9.75	27, 1893	Payetteville, N. C.	6.00	9-10, 1878
Mount St. Helena, Cal.	9.04	23-24, 1880	Do	6.00	20-21, 1878
Little Bear Valley, Cal. (near)	8.95	5-6, 1894	Clarksville, Tex.	6.00	22-23, 1892
Green Valley, Cal.	8.91	19, 1894	Hydeville, Cal.	6.00	20-22, 1892
Shasta Springs, Cal.	8.75	22-24, 1892	Olympia, Wash.	5.98	12, 1892
Clarksville, Tex.	8.50	29-30, 1874	Hallettsville, Tex.	5.93	11-12, 1891
Do	8.50	28-29, 1876	Mount St. Helena, Cal.	5.73	19-20, 1880
Eordyce Dam, Cal.	8.50	17-19, 1894	Louisville, Ill.	5.70	3, 1873
Yaqina L. H., Oreg.	8.47	5-6, 1887	Horse Cove, N. C.	5.67	10-11, 1894
Los Gatos, Cal.	8.46	23-24, 1892	New Ulm, Tex.	5.62	3, 1875
Point Pleasant, La.	8.03	28-30, 1884	Stuttgart, Ark.	5.61	12-13, 1892
Lower Holcomb Valley, Cal.	8.02	19-20, 1894	Toccoa, Ga.	5.50	11-12, 1894
Morses House, Cal.	8.02	19-20, 1894	Neah Bay, Wash.	5.45	16-17, 1887
College Station, Tex.	7.78	12-14, 1891	Fort Barrancas, Fla.	5.43	5, 1879
Little Bear Valley, Cal.	7.73	19, 1894	Merritts Island, Fla.	5.39	17, 1888
Portland, Oreg.	7.66	12-13, 1892	Upper Mattole, Cal.	5.37	8-9, 1894
Middletown, Cal.	7.57	23-24, 1892	Fort Barrancas, Fla.	5.36	3-4, 1877
Pikes Peak, Colo.	7.39	5-6, 1892	Searcy, Ark.	5.33	12-13, 1892
Edmonton, Cal.	7.08	2-3, 1892	Fort Barrancas, Fla.	5.32	20, 1882
Fordyce Dam, Cal.	7.08	6-7, 1894	Austin, Tex.	5.31	11-12, 1891
Madding, Ark.	7.06	12, 1892	Highlands, N. C.	5.30	26, 1881
Point Pleasant, La.	7.02	8-9, 1878	Titusville, Fla.	5.28	17, 1888
Fordyce Dam, Cal.	6.90	21-22, 1894	Trinity, Ala.	5.20	4, 1887
Little Bear Valley, Cal.	6.74	5-6, 1894	Squirrel Inn, Cal.	5.18	27, 1893
Squirrel Inn, Cal.	6.70	5-6, 1894	Nordhoff, Cal.	5.17	23-25, 1892
New Gascony, Ark.	6.66	12-13, 1892	Orceola, Ark.	5.06	30-31, 1892
Mount St. Helena, Cal.	6.65	2-3, 1890	Camden, Ala. b.	5.05	12, 1892
Little Bear Valley, Cal. (near)	6.64	19, 1894	Vicksburg, Miss.	5.05	18-19, 1872
Tunnel No. 2, Cal.	6.62	19-20, 1894	Red Bluff, Cal.	5.04	19, 1879
Fort Gaston, Cal.	6.60	24-25, 1883	Boyd's Corners, N. Y.	5.02	11, 1878
Pine Bluff, Ark.	6.60	12-13, 1892	Point Pleasant, La.	5.01	14, 1884

December 31, 1874 and January 1, 1875.

## Exceptional precipitation for one hour or less.

Station and state.	Amount.	Time.	Date.
	Inches.	h. m.	
New Orleans, La.	0.30	0.05	12, 1893
Tampa, Fla.	0.30	0.05	26, 1892
New Orleans, La.	0.30	0.05	5, 1890
Atlanta, Ga.	0.27	0.05	3, 1893
Vicksburg, Miss.	0.26	0.05	15, 1893
Jupiter, Fla. *	0.25	0.05	11, 1892
Norfolk, Va.	0.25	0.05	4, 1891
Savannah, Ga.	0.25	0.05	8, 1890
Galveston, Tex.	0.20	0.05	24, 1890
Tampa, Fla.	0.50	0.05	26, 1892
New Orleans, La.	0.50	0.10	12, 1893
Galveston, Tex.	1.36	0.20	28, 1871
Wellsboro, Pa.	1.20	0.20	7, 1894
Diamond, Ga.	1.07	0.20	11, 1894
Winnebago, Ill.	1.00	0.20	21, 1889

\* Record incomplete.

## MAXIMUM RAINFALL FROM SELF-REGISTERING GAUGES.

The following table gives the heaviest rainfall during December, 1894, for periods of 5, 10, and 60 minutes, as recorded on self-registering rain gauges at regular stations of the Weather Bureau. This record refers strictly to rainfall. About 37 stations are furnished with self-registering-float rain gauges and 6 with the self-registering-weighing rain-and-snow gauge. The float gauge does not record snowfall, and both forms are liable to be interrupted by snow or ice:

## Maximum rainfall in one hour or less.

Station.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Atlanta, Ga.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
Baltimore, Md.	0.17	10	0.24	9	0.48	9
Bismarck, N. Dak.†	0.19	12	0.15	12	0.34	12
Boston, Mass.	0.07	27	0.11	27	0.40	27
Buffalo, N. Y.	0.06	8	0.06	8, 10	0.27	10
Chicago, Ill. *	0.02	10	0.04	10	0.12	10
Cincinnati, Ohio.	0.05	1	0.08	1	0.30	1
Cleveland, Ohio.	0.03	12	0.06	12	0.23	12
Denver, Colo. *	0.02	8, 10	0.04	10	0.13	8
Dodge City, Kans. *	0.03	8	0.06	8	0.23	8
Duluth, Minn. *	0.05	27	0.08	27	0.13	12
Eastport, Me. *	0.06	3	0.12	3	0.21	3
Galveston, Tex.	0.07	8	0.10	8	0.24	8
Indianapolis, Ind.	0.09	26	0.11	26	0.22	26
Jacksonville, Fla.	0.09	6	0.12	6	0.33	6
Kansas City, Mo.	0.05	10	0.07	10	0.14	10
Key West, Fla.	0.02	12	0.04	12	0.13	12
Little Rock, Ark.	0.22	2	0.27	2	0.85	9
Louisville, Ky.	0.16	8	0.25	8	0.33	8
Memphis, Tenn. *	0.05	2, 9	0.10	2	0.45	2
Nantucket, Mass.	0.20	27	0.37	27	0.65	27
Nashville, Tenn.	0.07	8	0.09	8, 10	0.24	8, 26
New Orleans, La. *	0.12	12	0.13	12	0.44	12
New York, N. Y.	0.14	10	0.18	10	0.31	10
Norfolk, Va.	0.05	12	0.10	12	0.24	12
Philadelphia, Pa.	0.05	16	0.11	16	0.21	15
Pittsburg, Pa. *	0.02	12, 27	0.04	12, 27	0.12	28
Portland, Me. *	0.02	9	0.04	9	0.11	5
Portland, Oreg.	0.02	9	0.04	9	0.11	5
St. Louis, Mo. *	0.10	16	0.11	16	0.21	15
St. Paul, Minn.	0.10	16	0.11	16	0.21	15
Salt Lake City, Utah.	0.10	8	0.12	8	0.28	8
San Diego, Cal.	0.12	7	0.19	7	0.40	7
San Francisco, Cal.	0.12	26	0.02	26	0.09	26
Savannah, Ga. *	0.07	26	0.02	26	0.09	26
Seattle, Wash.	0.04	5	0.06	5	0.15	5
Vicksburg, Miss.	0.24	9	0.28	11	0.86	11
Washington, D. C.	0.21	12	0.26	12	0.40	12
Wilmington, N. C.	0.01	4	0.02	4	0.06	4

\* Record incomplete.

† Less than 0.05 in 1 hour.

## MONTHLY SNOWFALL.

The depth of snow that fell during the month of December, as reported by both regular and voluntary observers, is shown in detail, for stations reporting 10 inches or more, in the following table. The monthly snowfall and the limit of freezing weather are also shown on Chart VI.

## DEPTH OF SNOW ON GROUND.

The depth of unmelted snow lying on the ground at 8 p. m. of the 15th and 31st is shown in the following table, for stations reporting 10 inches of monthly snowfall. The amount on the ground on the 31st is also shown on Chart VII.

## Monthly snowfall and amounts on ground on the 15th and at close of month.

State and station.	Total.	15th.	31st.	State and station.	Total.	15th.	31st.
Alabama.	Inches.	Ins.	Ins.	California—Cont'd.	Inches.	Ins.	Ins.
Oxanna.	10.0	0.0	5.0	Greenville.	66.0	12.0	19.0
Arizona.	38.0	.....	.....	La Porte.	152.0	42.0	84.0
Flagstaff.	10.0	0.0	0.0	Little Bear Val. (near)	13.4	.....	.....
Rogers.	10.0	0.0	0.0	Ormonde.	36.0	.....	.....
Arkansas.	10.0	0.0	0.0	Pilot Creek.	87.0	32.0	36.0
Adin.	30.2	6.0	3.0	Shasta Springs.	97.6	31.0	38.0
Califonia.	24.0	0.0	0.0	Sisson.	95.0	.....	.....
Bear Valley.	155.0	38.0	66.0	Summerdale.	57.0	.....	.....
Boca.	118.0	0.0	0.0	Summit.	245.0	.....	.....
Cedarville.	17.3	4.0	7.5	Susanville.	53.5	.....	.....
Cisco.	216.0	0.0	0.0	Truckee.	139.5	.....	.....
Dunsmuir.	150.0	0.0	0.0	Colorado.	.....	.....	.....
Edgewood.	20.0	0.0	0.0	Boulder.	12.3	0.0	8.1
Edmonton.	168.0	5					

## Monthly snowfall and amounts on ground, etc.—Continued.

State and station.	Total.	15th.	31st.	State and station.	Total.	15th.	31st.
Colorado—Cont'd.	Inches.	Ins.	Ins.	Massachusetts—Cont'd.	Inches.	Ins.	Ins.
Castle Rock	31.0	.....	1.5	Amherst	18.0	.....	.....
Climax	39.0	.....	.....	Amherst Ex. Station a	22.0	0.0	7.0
Colbran	21.0	8.0	6.0	Amherst Ex. Station b	21.0	.....	6.0
Craig	16.8	8.0	9.0	Andover	22.0	.....	7.0
Denver	10.5	0.0	3.2	Bedford	14.5	T.	9.0
Divide Ex. Station	11.0	0.0	4.0	Beverly Farms	15.0	T.	4.0
Durango	30.0	4.0	4.0	Blue Hill (summit)	18.1	T.	4.0
Gold Hill	14.6	4.0	6.0	Boston	13.5	0.0	3.0
Hatchkiss	20.5	.....	4.2	Brockton a	10.1	0.0	2.0
Laporte	11.4	.....	.....	Chestnut Hill	13.5	0.0	4.0
Las Animas	11.5	.....	.....	Concord	23.2	1.0	16.0
Lay	16.0	4.5	6.0	Dudley	25.0	0.0	12.0
Meeker	13.5	.....	2.8	East Templeton	19.0	3.5	7.0
Moraine	17.8	.....	.....	Fall River	10.5	0.0	0.5
Ouray	33.0	5.0	6.0	Fiske Dale	21.0	.....	.....
Pagoda (near)	27.5	12.0	10.0	Fitchburg a	17.0	.....	6.0
Paonia	16.5	3.0	5.0	Fitchburg b	16.8	2.0	7.0
Parachute	20.0	5.0	8.0	Framingham	18.0	.....	.....
Redcliff	24.0	10.0	10.0	Gilbertville	12.0	T.	12.0
Rico	51.3	.....	.....	Groton	22.0	T.	10.0
Ruby	119.0	48.0	60.0	Hingham	10.5	.....	.....
St. Cloud	20.0	.....	8.0	Hobbs Brook	18.2	.....	7.0
San Juan	19.5	9.0	8.0	Lawrence	19.0	2.0	10.0
Santa Clara	14.0	.....	.....	Leeds	26.0	3.0	12.0
Scissors	16.0	2.0	4.0	Leominster	15.0	T.	4.5
Smoky Hill Mine	16.0	.....	8.0	Ludlow Center	16.0	.....	.....
Spring Gulch	14.9	6.0	7.0	Mansfield	15.8	T.	2.0
Stamford	21.5	5.0	.....	Milton	12.0	.....	.....
Surface Creek	28.0	3.0	3.0	Monroe	31.0	6.0	12.0
T. S. Ranch.	10.0	.....	.....	Mount Nonotuck	19.5	5.0	8.0
Connecticut.	.....	.....	.....	Natick	20.0	T.	6.0
Canton	18.0	2.0	7.0	North Billerica	25.0	6.0	6.0
Falls Village	16.0	1.0	6.0	Randolph	11.0	T.	2.0
Hartford b	11.5	1.0	5.0	Roberts Dam	20.0	.....	.....
N. Grosvenor Dale	21.0	.....	.....	Roxbury	16.7	0.0	5.0
Southington	13.0	.....	.....	Salem	15.0	.....	.....
South Manchester	10.0	2.0	5.0	Salisbury	20.0	0.0	6.0
Storms	17.0	T.	4.0	Somerset	14.0	0.0	6.0
West Simsbury	18.0	4.0	6.0	Springfield Armory	17.0	.....	.....
Windsor	15.3	3.1	5.2	Taunton b	13.5	0.0	2.0
Idaho.	.....	.....	.....	Wakefield	20.0	1.0	8.0
Atlanta	24.0	12.0	15.0	Webster	19.0	2.0	7.0
Chesterfield	11.0	7.0	6.0	Westboro	19.5	8.0	12.0
Garden Valley	25.7	.....	.....	Williamstown	16.0	.....	.....
Grangeville	20.4	2.0	4.0	Winchendon	19.5	4.0	8.0
Hailoy	18.6	.....	.....	Winthrop	12.5	0.0	6.0
Idaho City	40.2	.....	.....	Michigan.	.....	.....	.....
Kootenai	42.0	24.0	12.0	Calumet	18.7	3.0	7.5
Chesterfield	11.0	7.0	6.0	Charlevoix	14.0	.....	.....
Garden Valley	25.7	.....	.....	Lathrop	10.0	6.0	8.0
Grangeville	20.4	2.0	4.0	Marquette	16.6	3.1	8.3
Hailoy	18.6	.....	.....	Northport	16.0	1.0	10.0
Idaho City	40.2	.....	.....	Sault Ste. Marie	14.0	1.4	8.3
Kootenai	42.0	24.0	12.0	Montana.	.....	.....	.....
Lake	30.0	.....	.....	Cokedale	15.0	.....	.....
Lucas	41.7	.....	.....	Columbia Falls	18.0	T.	9.0
Martin	19.5	18.0	20.0	Fort Missoula	12.0	.....	.....
Murray	52.0	12.0	18.0	Hogan	11.0	T.	10.0
Paris	16.5	8.0	9.0	Kipp	11.0	.....	.....
Salubria	23.5	8.3	12.5	Troy	21.6	.....	.....
Illinois.	.....	.....	.....	Nevada.	.....	.....	.....
Chicago.	10.1	0.0	5.7	Austin	26.0	.....	.....
Indiana.	.....	.....	.....	Battle Mountain	11.5	3.0	2.0
Hammond	13.2	.....	12.0	Belmont	20.2	8.0	6.0
Madison	12.0	.....	7.0	Beowawe	12.0	.....	.....
Vevay	12.0	.....	8.0	Carlin	18.1	.....	.....
Kansas.	.....	.....	.....	Carson City (W. B.)	24.8	1.2	5.5
Ellinwood	10.8	.....	.....	Carson City (V. O.)	22.2	1.2	5.5
Garden City	10.0	4.0	2.0	Clover Valley	18.0	2.0	6.0
Hutchinson	12.0	0.0	5.0	Cortez	31.0	8.0	9.0
Ness City	12.0	.....	.....	Elko	15.0	.....	.....
Pleasant Dale	12.0	T.	4.0	Elko (near)	32.4	18.0	14.0
Kentucky.	.....	.....	.....	Ely	21.0	.....	.....
Alpha	12.0	0.0	2.0	Genoa	24.0	2.0	6.1
Caddo	13.0	.....	12.0	Golconda	10.0	.....	.....
Canton	11.0	.....	4.0	Gold Hill	39.5	4.0	5.0
Carrollton	12.0	.....	12.0	Halleck	20.2	7.0	10.0
Catlettsburg	11.0	.....	7.0	Lewers Ranch	45.4	14.0	18.0
Earlington	12.0	.....	8.0	Marlette Lake	73.8	14.0	40.0
Eddyville	10.0	.....	7.0	Osceola	24.7	10.0	5.0
Felmouth	10.0	.....	.....	Palisade	21.0	.....	.....
Fords Ferry	15.0	.....	4.0	Patricello	21.0	2.2	9.0
Harrordsburg	11.3	.....	7.0	Paradise Valley	23.5	.....	.....
Henderson	10.0	.....	.....	Reno	18.0	.....	.....
Louisville	10.5	0.0	9.9	Reno State University	14.3	0.0	2.8
Mount Sterling	12.5	0.0	2.5	Ruby Valley	16.8	5.0	5.0
Paducah	12.0	0.0	5.0	Stofiel	21.5	5.0	4.0
Shelbyville	13.0	.....	13.0	Tecoma	13.0	.....	.....
Springfield	10.0	.....	.....	Toano	34.5	.....	.....
Maine.	.....	.....	.....	Tybo	19.0	8.0	10.0
Belfast	13.0	.....	7.0	Verdi	52.0	.....	.....
Calais	10.5	.....	5.0	Virginia City	27.1	2.1	5.3
Cornish	11.0	.....	.....	Winnemucca (W. B.)	21.1	5.3	6.5
Fairfield	20.0	.....	10.0	Winnemucca (V. O.)	20.0	.....	.....
Farmington	14.8	0.0	9.0	New Hampshire.	.....	.....	.....
Gardiner	12.0	.....	7.0	Astead	18.0	2.0	.....
Houlton	19.5	T.	12.0	Berlin Mills	29.0	4.0	16.0
Indian Stream	17.5	T.	12.0	Bethlehem	15.0	1.0	7.0
Lewiston	21.2	T.	.....	Brookline	17.8	2.0	9.0
Madison	18.5	3.0	12.0	Concord	20.0	T.	9.0
Orono	10.9	0.0	9.5	Dublin	24.0	T.	12.0
Portland	11.7	0.0	8.4	Hanover	19.5	0.0	10.0
Maryland.	.....	.....	.....	Keene	16.5	T.	7.0
Boettcherville	12.0	0.0	10.0	Lancaster	22.5	1.0	12.0
Cumberland a	12.0	0.0	12.0	Littleton	14.8	2.0	7.0
Deer Park	13.0	.....	.....	Nashua	21.0	T.	9.0
Grantsville	15.0	0.0	15.0	Newton	18.0	.....	.....
Oakland	22.0	.....	18.0	North Conway	18.0	.....	.....
Sunny-side	17.0	0.0	16.0	North Conway	18.0	.....	.....
Taneytown	10.0	0.0	6.0	.....	.....	.....	.....
Western Port	10.0	.....	.....	.....	.....	.....	.....
Massachusetts.	.....	.....	.....	.....	.....	.....	.....
Adams	24.0	.....	8.0	.....	.....	.....	.....

## Monthly snowfall and amounts on ground, etc.—Continued.

State and station.	Total.	15th.	31st.	State and station.	Total.	15th.	31st.	State and station.	Total.	15th.	31st.
N. Hampshire—Cont'd.	Inches.	Ins.	Ins.	Peterboro	19.7	4.0	8.0	Kilmers	15.5	.....	12.0
Amherst	18.0	.....	.....	Plymouth	22.0	2.0	6.0	Le Roy	16.5	0.0	14.5
Amherst Ex. Station a	22.0	0.0	7.0	Saintsburyton	12.0	T.	6.5	Lewisburg	20.0	.....	.....
Amherst Ex. Station b	21.0	.....	6.0	Stratford	20.0	2.0	6.0	Lock Haven	21.0	.....	.....
Andover	22.0	.....	7.0	West Milan	29.9	7.0	18.0	Lock No. 4	11.0	0.0	8.0
Bedford	14.5	T.	9.0	New Jersey.	.....	.....	.....	Mahoning	14.0	0.0	7.0
Beverly Farms	15.0	T.	4.0	Elizabeth	12.0	0.0	8.0	Parker	13.0	0.0	13.0
Blue Hill (summit)	18.1	T.	4.0	New Mexico.	25.0	6.0	12.0	Pittsburg	13.1	0.0	8.0
Boston	13.5	0.0	3.0	Pecos	17.0	.....	.....	Ridgway	18.0	.....	.....
Brockton a	10.1	0.0	2.0	Ross	13.0	3.0	.....	Salem Corners	16.0	0.0	10.0
Chestnut Hill	13.5	0.0	4.0	New York.	13.0	3.0	.....	Saltsburg	15.0	0.0	10.0
Concord	23.2	1.0	16.0	.....	.....	.....	.....	Selinsgrove	18.0	0.0	18.0
Dudley	25.0	0.0	12.0	.....	.....	.....	.....	Shinglehouse	22.5	0.0	20.0
East Templeton	19.0	3.5	7.0	.....	.....	.....	.....	Smethport	18.0	.....	.....
Full River	10.5	0.0	5.0	.....	.....	.....	.....	Somerset	22.0	.....	15.0
Fiske Dale	21.0	.....	.....	.....	.....	.....	.....	State College	12.2	0.0	11.0
Fitchburg a	17.0	.....	6.0	.....	.....	.....	.....	Stayes town	17.0	.....	.....
Fitchburg b	16.8	2.0	7.0	.....	.....	.....	.....	Townanda	16.5	0.0	14.0
Framingham	18.0	.....	.....	.....	.....	.....	.....	Untiontown	15.0	.....	.....
Gilbertville	12.0	.....	.....	.....	.....	.....	.....	Warren	12.2	0.0	12.0
Gilbertville	12.0	.....	.....	.....	.....	.....	.....	Wellsboro	18.5	0.0	18.0
Gloversville	10.5	0.0	12.4	.....	.....	.....	.....	West Newton	17.0	0.0	12.0
Glens Falls	23.2	0.0	12.0	.....	.....	.....	.....	Wilkesbarre	19.0	2.0	15.0
Gloucester	21.2	0.0	17.0	.....	.....	.....	.....	Rhode Island.	.....	.....	.....
Hamilton	19.5	0.0	10.0	.....	.....	.....	.....	Bristol	11.5	0.0	0.0
Honeymead Brook	12.0	0.0	10.0	.....	.....	.....	.....	Lonsdale	15.0	0.0	4.0
Humphrey	14.9	0.0	12.0	.....	.....	.....	.....	Pawtucket			

*Monthly snowfall and amounts on ground, etc.—Continued.*

State and station.	Total.	15th.	31st.	State and station.	Total.	15th.	31st.
W. Virginia—Cont'd. Baleigh.....	Inches. 11.0	In.	In.	W. Virginia—Cont'd. Wheeling a.....	Inches. 11.5	In.	In.
Kowlesburg.....	19.0	....	....	Wheeling b.....	10.0	....	8.0
Sandyville.....	13.0	....	10.0	Wisconsin.....	....	....	....
Spencer.....	16.0	0.0	16.0	Amherst.....	13.5	....	....
Tannery.....	20.0	0.0	20.0	Wyoming.....	....	....	....
Weston a.....	20.0	0.0	2.0	Fort Yellowstone.....	13.1	....	....
Weston b.....	18.0	....	8.0				

## SLEET.

The following are the dates on which sleet fell in the respective States:

Alabama, 30. Arizona, 27, 28. Arkansas, 1, 26, 30, 31. California, 6, 7. Colorado, 1, 10, 20, 22, 23. Connecticut, 1, 2, 8, 9, 11, 12, 17, 26, 27. Delaware, 26. Georgia, 4, 30, 31. Idaho, 6, 19, 20, 31. Illinois, 3. Indiana, 12, 24. Iowa, 9, 10, 11, 24. Kansas, 10, 11. Kentucky, 25, 26. Louisiana, 25, 26, 30. Maine, 12, 17, 27, 30. Maryland, 10, 24, 26. Massachusetts, 1, 2, 8 to 11, 24, 27. Michigan, 1, 11, 12, 24, 29.

Minnesota, 1, 8, 10, 15, 16, 21, 23, 24. Mississippi, 26, 27, 29, 30. Missouri, 1, 10, 11, 23. Montana, 20. Nebraska, 9, 10, 11. Nevada, 5, 6. New Hampshire, 11, 27. New Jersey, 1, 6, 10, 11, 24 to 27. New Mexico, 7, 8, 28. New York, 1, 2, 10 to 13, 17, 22, 25, 26, 27. North Carolina, 5, 26, 27, 28, 29, 31. North Dakota, 7, 8, 23. Ohio, 10, 12, 21, 25, 27. Oregon, 1, 5, 6, 10, 11, 14, 16, 24, 25, 26, 29, 30. Pennsylvania, 1, 2, 9 to 12, 24 to 27. Rhode Island, 1, 9, 11, 28. South Carolina, 7, 8, 26, 28, 30, 31. South Dakota, 8, 24, 26, 31. Tennessee, 3, 26, 27. Texas, 31. Utah, 6, 9, 20. Vermont, 11, 27. Virginia, 4, 26, 27, 29. Washington, 5 to 8, 10, 14, 17, 22. West Virginia, 10, 23, 26, 27. Wisconsin, 11, 24.

## HAIL.

The following are the dates on which hail fell in the respective States:

Alabama, 10, 11. Arkansas, 9. California, 6, 9, 19, 21. Georgia, 11, 17. Illinois and Indiana, 8. Louisiana, 3, 9, 10. Mississippi, 10, 11. Missouri, 8, 24. North Carolina, 26. Ohio, 8. Oregon, 7, 18. South Carolina, 12. Tennessee, 11. Texas, 9, 10. Washington, 6.

## WIND.

## PREVAILING DIRECTIONS.

The prevailing winds for December, 1894, viz, those that were recorded most frequently at Weather Bureau stations, are shown in Tables I and VIII; they are not given on Chart II, as has hitherto been the custom, but the resultant winds are published instead.

## RESULTANT WINDS.

The resultant winds for the current month, as deduced from the hourly readings of self-registers at about 67 regular Weather Bureau stations, are given in Table VIII. Other resultants, deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart II, in connection with the isobars based on the same system of simultaneous observation; the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a wind of average velocity; these figures (or the ratio between them and the total number of observations in this month) indicate the extent to which winds from different directions counterbalanced each other. The original north, south, east, and west components are given in detail in Table IX.

During December the resultant movement was generally from the northwest in New England, northwest in the middle and south Atlantic States, southwest in the Ohio Valley and Tennessee and southern Rocky Mountain slope, northeast in the Gulf States, and southeast in the north Pacific coast region.

## HIGH WINDS.

Maximum wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Amarillo, Tex.....	7	Miles. 56	w.	Buffalo, N. Y.....	12	Miles. 50	w.
Do.....	10	54	nw.	Cheyenne, Wyo.....	20	72	w.
Do.....	15	58	sw.	Chicago, Ill.....	16	60	sw.
Block Island, R. I.....	26	62	e.	Portsmouth, Me.....	27	60	ne.
Do.....	27	68	e.	El Paso, Tex.....	10	54	nw.
Boston, Mass.....	27	50	ne.	Erie, Pa.....	10	51	se.

## Wind velocities of 50 miles, or more—Continued.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Fort Canby, Wash.....	5	59	se.	Portland, Oreg.....	7	54	sw.
Do.....	6	56	se.	Do.....	8	50	s.
Do.....	7	65	e.	Rapid City, S. Dak.....	20	56	sw.
Do.....	8	56	e.	Sacramento, Cal.....	9	60	se.
Do.....	9	62	s.	Tatooosh Island, Wash.....	7	76	e.
Do.....	10	62	se.	Do.....	8	56	sw.
Do.....	11	77	se.	Do.....	9	60	se.
Do.....	16	56	se.	Do.....	10	50	s.
Do.....	20	62	e.	Do.....	11	52	s.
Do.....	29	58	se.	Do.....	29	55	e.
Hatteras, N. C.....	29	54	nw.	Winnemucca, Nev.....	20	56	sw.
Huron, S. Dak.....	20	58	sw.	Woods Hole, Mass.....	13	50	sw.
Independence, Cal.....	9	52	w.	Do.....	27	72	sw.
Lander, Wyo.....	20	60	sw.				

## LOCAL STORMS.

Destructive or severe local storms were reported as follows:

**6th.**—San Francisco, Cal., thunderstorm.

**7th.**—Napa, Cal., windstorm.

**8th.**—Fox Creek, Mo., hailstorm.

**9th.**—Seattle, Wash., Astoria, Oreg., and Sacramento, Cal., windstorms.

**10th.**—Erie, Pa., windstorm. Near Richland, Ga., wind-storm. Kingston, Ga., thunderstorm; ten persons injured. Westville, Fla., severe windstorm, funnel-shaped cloud; several persons badly injured. Summerfield, La., and Omega, La., thunderstorms. White Castle, La., severe windstorm; one person killed and about ten injured.

**11th.**—Berkeley, Cal., windstorm.

**12th.**—Forsyth and Reynolds, Ga., thunderstorms.

**19th.**—Heber, Utah, windstorm.

**20th.**—Cross, S. Dak., and Fort Laramie, Wyo., windstorms.

## WIND SIGNALS FOR DECEMBER.

As it seems improper to assign the necessity for a high wind signal to the presence of an area of low pressure when there is an equally important area of high pressure adjacent, the Editor has transferred the enumeration of the wind signals from the sections on high and low areas to the present section on "Wind."

In the following list the hours at which the respective signals were hoisted are given in each case, using seventy-fifth meridian time uniformly: